

March 27, 2013

BY ELECTRONIC DELIVERY

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street SW
Washington DC 20554

Re: Progeny LMS, LLC
Permitted Written *Ex Parte* Presentation
WT Docket No. 11-49

Dear Ms. Dortch:

Progeny LMS, LLC (“Progeny”), by its attorneys, herein addresses the most recent filing by the Part 15 Coalition (“Coalition”).¹ The only new argument presented by the Coalition is a blatant misrepresentation of the important goals of the public safety community with respect to the development of indoor location capabilities to find wireless callers seeking E911 emergency assistance.

The Coalition claims that public safety’s only goal with respect to the establishment of indoor location technologies is the ability to “consistently identify the specific building and floor” of an individual in distress. The Coalition then claims that the recent report of the Commission’s Communications Security, Reliability and Interoperability Council III (“CSRIC”) found that “none of the systems tested, including Progeny’s, provides E911 location accuracy anywhere near the level required by public safety.”²

The Coalition’s presumptuous attempt to speak for the needs of the public safety community was soundly refuted in a letter filed by NENA: The 9-1-1 Association (“NENA”), which explained that “[a]ny significant improvement over the current regime of impossibly-large outdoor search rings

¹ See Letter from Laura Stefani, Counsel to the Part 15 Coalition, to Marlene H. Dortch, Secretary, Federal Communications Commission, Ex Parte Notice, WT Docket No. 11-49 (March 20, 2013) (“*Coalition Letter*”).

² See *id.* at 2.

and indeterminate indoor search rings must be encouraged, whether or not it can reach our ultimate ideal right away.”³ Therefore, “M-LMS technologies such as Progeny’s represent a tremendous opportunity to enable immediate and dramatic improvements in wireless location accuracy in precisely those areas of the country that are the most challenging for existing technologies.”⁴ NENA notes that its views are verified by the Public Safety Forward to the CSRIC report, which explained:

Public Safety desires reliable and consistent caller location information to a specific dispatch-able building (and floor in multi-story environments). *Lacking the specific building and floor, the desire would be for the smallest possible search ring*, but still with the underlying requirement for confidence in the reliability and consistency of the data...

...the current results involving [Progeny] demonstrate the ability to achieve improved search rings in the horizontal dimension (often identifying the target building, or those immediately adjacent). Substantial progress in the vertical dimension (67th percentile of 2.9 meters, or approximate floor level accuracy) was also demonstrated by [Progeny] through the use of locally calibrated barometric pressure sensors in the handset. *The availability of such functionality would be an important factor in locating indoor callers in urban and dense urban multistory buildings.*

...Public Safety expects that the standardization, commercial availability and deployment of such technologies are priorities for all stakeholders.⁵

The CSRIC report and NENA therefore conclude that Progeny’s location service responds directly to the immediate needs of emergency first responders. Despite the very challenging test conditions, Progeny’s location technology delivered indoor position fixes that reduced first responder search rings on average by 90%, identifying callers either in or adjacent to the target building in more than 80 percent of the tests conducted. Progeny’s service was also the only technology able to demonstrate very precise vertical accuracy across all locations, with a median accuracy of 2 meters (essentially “floor level”), even in large multistory buildings. These results document the significant ability of Progeny’s service to assist public safety in locating individuals in distress even in challenging urban, multistory structures.

³ See Letter from Telford E. Forgety, III; Director of Government Affairs & Regulatory Counsel, NENA: The 9-1-1 Association, to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 11-49, at 2 (March 22, 2013) (“NENA Letter”) (*emphasis in original*).

⁴ *Id.*

⁵ *Indoor Location Test Bed Report*, The Communications Security, Reliability and Interoperability Council III, Working Group 3 – E9-1-1 Location Accuracy, at 9 (March 14, 2013) (*emphasis added*).

Certainly, the public safety community would like indoor location capabilities to improve even further in the future, at some point ideally ensuring that all wireless callers to E911 can consistently be located on a specific floor within a specific building.⁶ As do other technology providers, Progeny continues working on improving its technology in an effort to fulfill this goal, such as through the integration of Progeny's terrestrial network signals with those of the Global Positioning System ("GPS"). Progeny's efforts in this regard, however, should not be used as an excuse to delay the availability to public safety of Progeny's current generation of highly accurate location technology, and it is disingenuous for the Coalition to urge otherwise. The Commission's Homeland Security and Public Safety Bureau well understands the express needs of the public safety community, as do NENA,⁷ the International Association of Fire Fighters ("IAFF"),⁸ the International Association of Fire Chiefs ("IAFC"),⁹ the San Francisco Department of Emergency Management,¹⁰ the Boulder Regional Emergency Telephone Service Authority,¹¹ and other public safety organizations who have participated in the CSRIC process.

The Coalition also makes other arguments in its most recent filing, but all of these arguments have been raised previously by the Coalition or other parties and were fully discredited by Progeny in previous filings in this proceeding. For ease of reference, Progeny herein summarizes and expands on its previous submissions regarding each of the Coalition's recycled arguments:

1. The Coalition's claim that the joint and independent tests that have been conducted on Progeny's network cannot be extrapolated to Supervisory Control and Data Acquisition ("SCADA") devices used by electric utilities and therefore further testing is needed.

The Coalition, along with the Utilities Telecom Council ("UTC"), has argued that an unresolved question exists regarding whether Progeny's network can operate without causing unacceptable levels of interference to SCADA devices that operate on an unlicensed and unprotected

⁶ *NENA Letter* at 1.

⁷ *See id.*

⁸ *See* Letter from Harold A. Schaitberger, General President, International Association of Fire Fighters, to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 11-49 (March 25, 2013).

⁹ *See* Letter from Chief Hank C. Clemmensen, President and Chairman of the Board, International Association of Fire Chiefs, to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 11-49 (March 25, 2013).

¹⁰ *See* Letter from Lisa Hoffmann, Deputy Director, Division of Emergency Communications, City and County of San Francisco Department of Emergency Management, to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 11-49 (March 25, 2013).

¹¹ *See* Letter from Joseph P. Benkert, Attorney for the Boulder Regional Emergency Telephone Service Authority, to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 11-49 (March 20, 2013).

basis in the 902-928 MHz band.¹² The Coalition claims that SCADA systems involve “complex networks that will be impacted differently from the AMR radios tested, and for this reason the results of the testing performed to date cannot be extrapolated to determine the effect of Progeny on these systems.”¹³ The Coalition even cites to a UTC claim that one of the Coalition’s leading members, Itron, does not manufacture SCADA devices, an assertion that is contradicted by Itron’s own website.¹⁴

Progeny has previously addressed this argument, observing that Progeny did conduct joint tests with Landis+Gyr Corporation, which does manufacture two-way SCADA equipment using the same types of radio transmitters that were employed in the joint tests.¹⁵ SCADA equipment manufactured by Landis+Gyr and other companies almost uniformly employ frequency hopping spread spectrum (“FHSS”) and frequency-shift keying (“FSK”) modulation using a substantial number of small bandwidth channels (typically 100 kHz to 300 kHz) with minimal dwell time on any frequency.¹⁶ Progeny’s tests with such devices have consistently shown that Progeny’s network will not interfere with such devices.

The use of FHSS technology greatly minimizes the potential for a SCADA transmission to employ the same frequency as a nearby Progeny beacon at exactly the same time and, in those rare cases when a conflict might occur, the verification and retransmission capabilities of two-way SCADA devices ensures that any packet errors that might result are either duplicative of packets sent through sequential transmissions or are promptly resent on alternate frequencies. Because multiple channels are utilized for initial transmission, perceptible latency to SCADA communications is rarely encountered, particularly as compared to retransmission and latency that might result to SCADA networks from interference caused by existing Part 15 devices. For these reasons, the results of the Landis+Gyr joint tests showed virtually no data throughput impact to Landis+Gyr’s two-way equipment and clearly demonstrated that Progeny’s E911 position location service can operate compatibly with unlicensed SCADA networks.

The Coalition, however, completely disregards Progeny’s prior analysis on this issue, apparently hoping that, if the Coalition ignores the documented facts with sufficient conviction, the Commission might be persuaded to overlook the facts as well. The Coalition also repeats prior misstatements regarding whether Progeny would consent to further joint testing. The Coalition claims that “Progeny has stated that spending an additional six months to a year testing against these

¹² See *Coalition Letter* at 3-4.

¹³ *Id.* at 3.

¹⁴ See *id.* at 3 n.8.

¹⁵ See Letter from Bruce A. Olcott, Counsel to Progeny LMS, LLC, to Marlene H. Dortch, Secretary, Federal Communications Commission, Ex Parte Notice, WT Docket No. 11-49 (Feb. 25, 2013) (“*Progeny February 25 Letter*”).

¹⁶ See *id.* at 2.

systems would not be unreasonable.”¹⁷ Although Progeny has acknowledged that additional testing would delay this process by six months to a year, Progeny has never indicated that any such delay would be reasonable because the joint and independent tests that have already been completed are clearly adequate to demonstrate that Progeny’s service will not cause unacceptable levels of interference to Part 15 devices.¹⁸

2. The Coalition’s argument that additional testing is needed with Inovonics, Plantronics and with many other companies and users that the Coalition claims, “are not aware of Progeny’s proposed operations and the clear threat those operations pose.”

The Coalition has repeatedly argued that, despite 18 months of joint and independent testing on Progeny’s position location network, further testing is warranted involving additional Part 15 equipment manufacturers that were not directly involved in the previous rounds of tests.¹⁹ Although the Coalition specifically names two companies, Inovonics and Plantronics, as potential candidates for further joint testing, the Coalition makes no secret of its desire to identify “many other companies and users” of Part 15 devices that it hopes to line up as future test candidates in an endless process of joint tests followed by public comment, followed by even more joint tests and comment, ad infinitum.²⁰

As the Commission is well aware, there are literally tens of thousands of different models of Part 15 devices in the market and millions of users of such equipment. When explored in detail, however, the myriad devices that exist employ a relatively modest variety of signal modulation and interference avoidance techniques. Thus, when the numerous joint and independent tests that have been conducted on Progeny’s network are considered together, it can be concluded that the vast majority of these device types – and certainly all of those that are the most susceptible to interference – have been tested and documented in the presence of Progeny’s position location network.

For example, as Progeny has explained in previous filings, Inovonics manufactures wireless panic button alarms use FHSS technology to transmit alerts using channels across the entire 902-928 MHz band.²¹ Progeny undertook extensive testing of different types of FHSS Part 15 devices in its 2011 test process and in its 2012 joint tests with Itron and Landis+Gyr and the results uniformly demonstrate that FHSS devices can operate in the immediate presence of Progeny’s position location

¹⁷ See *Coalition Letter* at 1 (citing Letter from Brett Kilbourne, Utilities Telecom Council, to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 11-49, at 2 (Feb. 20, 2013)).

¹⁸ See *Progeny February 25 Letter* at 2-3.

¹⁹ See *Coalition Letter* at 4.

²⁰ *Id.* at 4.

²¹ See Letter from Bruce A. Olcott, Counsel to Progeny LMS, LLC, to Marlene H. Dortch, Secretary, Federal Communications Commission, Ex Parte Notice, WT Docket No. 11-49 (Jan. 29, 2013).

transmitters without experiencing any reduced functionality or reliability.²² Even if an Inovonics device is used in an outside location that is immediately adjacent to a Progeny transmitter, the probability that the Inovonics device and the Progeny location beacon will transmit signals on exactly the same channel at exactly the same time is no higher than 3.2 percent.²³ In the unlikely event that such coinciding transmissions block an Inovonics signal on a particular channel, the Inovonics signal will be received by the Inovonics receiver on one of the numerous other Part 15 channels that do not overlap with Progeny's licensed spectrum and the alert message will be reliably and consistently received from the device user.

Given these facts, no need exists to conduct further joint testing with the unlicensed devices of Inovonics or any other party. The Coalition's repetitious call for additional tests is a stalling tactic in an effort to exhaust Progeny's regulatory resources and delay this proceeding so that the Commission will not have an opportunity to reach conclusions regarding the results of the extensive joint and independent tests that have been conducted and the fact that they clearly show that Progeny's position location network will not cause unacceptable levels of interference to Part 15 devices. The Commission should therefore disregard the Coalition's request for further testing and promptly reach a conclusion based on the extensive and comprehensive test results that have been jointly filed with the Commission.

3. The Coalition's argument that the alleged performance impact to a then-uncertified prototype device of Taggle Systems that is not available for sale in the United States "squarely refutes Progeny's claim that its existing operations have operated without claims of interference."

In an effort to find someone, apparently anyone, that claims to have suffered unacceptable levels of interference from Progeny's position location networks in the San Francisco Bay Area and in 39 other major EAs, the Coalition turns to Taggle Systems, an Australian company with no deployed systems in the United States that is reportedly considering the importation of a water meter reading device that it developed for its home market without first adapting the device to address the unlicensed operating environment of the 902-928 MHz band in the United States. Taggle claims to have conducted testing of its prototype device in Los Altos Hills, California last month in the presence of Progeny's network.²⁴ The results of those tests were far less favorable than Taggle apparently anticipated.

²² See, e.g., *Coexistence of M-LMS Network and Part 15 Devices*, Spectrum Management Consulting Inc., at 18-19, 43 and 47 (Jan. 27, 2012) (included as an attachment to Letter from Bruce A. Olcott, Counsel to Progeny LMS, LLC, to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 11-49 (Jan. 27, 2012)) (summarizing results of testing with FHSS Part 15 devices).

²³ See *id.* at 18-19 (explaining the calculation of the no more than 3.2 percent probability for FCC-compliant FHSS devices).

²⁴ See Letter from Gordon Foyster and Chris Andrews, Taggle Systems, Eveleigh Australia, to Ms. Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 11-49 (March 18, 2013).

As Progeny explained in a technical analysis that it filed in the docket last week, the poor performance experienced by Taggle resulted from the relatively high noise floor that exists in nearly all suburban and urban areas of the United States, as compared to the much lower noise floor that Taggle specified as required and which it apparently enjoys in its home market.²⁵ Taggle's poor test results were not caused by interference from Progeny's network and the Coalition must therefore continue its search to find an actual user of a Part 15 device (hopefully a commercially available Part 15 device) that can validly claim to have experienced in actual operating conditions unacceptable levels of interference from Progeny's network during the extensive period of time that Progeny has been broadcasting its position location signals in the top 40 urban markets in the country.

4. The Coalition's claim that the Commission has not yet determined what would constitute "unacceptable levels of interference."

Public Knowledge recently argued that the Commission should issue a public notice requesting comment on the definition of "unacceptable levels of interference."²⁶ Progeny responded by pointing out that the definition of the Commission's unacceptable levels of interference standard has been the subject of at least seven rounds of public notice and comment.²⁷ Therefore, it is unclear what would be gained by an eighth round of public comment other than to create further delay in the completion of this proceeding.

Now the Coalition is echoing Public Knowledge's call for the release of a public notice on the definition of unacceptable levels of interference.²⁸ Interestingly, however, the Coalition has made virtually no effort to explain in the dozens of filings that have been submitted by the Coalition and its counsel what it believes is the appropriate definition of unacceptable levels of interference.

In stark contrast, one of Progeny's very first undertakings in this docket was the preparation and filing of a lengthy and detailed analysis addressing the history of the Commission's unacceptable levels of interference standard, the rulemaking process that was employed by the Commission to develop the standard, its relationship to the Commission's harmful interference standard, and the clear and objective testing and spectrum sharing requirements that the unacceptable levels of

²⁵ See Letter from Bruce A. Olcott, Counsel to Progeny LMS, LLC, to Marlene H. Dortch, Secretary, Federal Communications Commission, Ex Parte Notice, WT Docket No. 11-49 (March 22, 2013).

²⁶ See Letter from Michael Calabrese, Director, Wireless Future Project, Open Technology Institute, New America Foundation, to Marlene H. Dortch, Secretary, Federal Communications Commission, *Ex Parte* Presentation in WT Docket No. 11-49 et al., at 4 (Feb. 14, 2013); Letter from Harold Feld, Legal Director, Public Knowledge, to Marlene H. Dortch, Secretary, Federal Communications Commission, *Ex Parte* Presentation in WT Docket No. 11-49 et al., at 2 (Feb. 7, 2013).

²⁷ See Letter from Bruce A. Olcott, Counsel to Progeny LMS, LLC, to Marlene H. Dortch, Secretary, Federal Communications Commission, Ex Parte Notice, WT Docket No. 11-49 (Feb. 19, 2013).

²⁸ See *Coalition Letter* at 5.

interference standard imposes on licensees in the multilateration location and monitoring (“M-LMS”) service.²⁹

Given the length of Progeny’s analysis, Progeny will not attempt to repeat or summarize its materials herein. Progeny notes, however, that the Coalition has never challenged Progeny’s analysis or its conclusions regarding the definition and objective requirements of the Commission’s unacceptable levels of interference standard, including in the Coalition’s most recent letter to the Commission addressing this subject. Clearly, after countless filing and arguments in this docket, the Coalition has avoided addressing the substance of this issue because it recognizes that Progeny was correct in its legal analysis and therefore the Coalition’s call for an additional public notice seeking comment on the definition of the interference requirement is solely and exclusively an additional effort by the Coalition to delay the completion of this proceeding and to prevent Progeny’s critically-needed indoor location service from being made available to emergency first responders and to the public.

5. The Coalition’s claim that the Commission should consider modifications to the technical design of Progeny’s network

Finally, the Coalition argues that further delay is justified so that the Commission can consider some of the modifications to Progeny’s network that have been proposed by Progeny’s opponents.³⁰ As Progeny has explained in previous submissions, some of these proposed modifications have bordered on the absurd. For example, GE has argued that M-LMS licensees be restricted to a maximum output power of 4 watts (the same as many Part 15 devices) effectively revoking their Part 90 M-LMS licenses and requiring them to construct their networks using Part 15 devices.³¹

The Coalition argues that the Commission originally contemplated when it adopted a field test requirement for M-LMS licensees that the test results could be used by M-LMS network operators to reevaluate their network designs and incorporate improvements,³² which the Commission described as “fine-tuning system operations.”³³ As the Coalition appears to concede, these additional steps were permissive and were premised on the possibility that the results of field tests with Part 15 devices revealed a need for changes to address unacceptable levels of interference to unlicensed devices. In Progeny’s case, however, the joint and independent tests on Progeny’s network have clearly indicated that Progeny’s position location service can share the 902-928 MHz band very well with Part 15 devices without resulting in unacceptable levels of interference.

²⁹ See *Response of Progeny LMS, LLC*, WT Docket No. 11-49, at 3-10 (March 30, 2012).

³⁰ See *Coalition Letter* at 5-7.

³¹ See *Progeny March 21 Letter* at 3.

³² See *Coalition Letter* at 6-7.

³³ Amendment of Part 90 of the Commission’s Rules to Adopt Regulations for Automatic Vehicle Monitoring Systems, Report and Order, 10 FCC Rcd 4695 at ¶ 82 (1995).

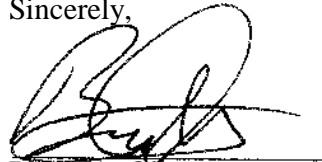
Therefore, no modifications are necessary. This is in part because of the significant interference mitigation accommodations Progeny made in its initial network design, such as using broadcast-only transmissions and employing a very low duty cycle.

Despite the fact that Progeny has clearly satisfied its burden of demonstrating that its M-LMS network does not cause unacceptable levels of interference to Part 15 devices, Progeny has volunteered additional modifications and constraints to its network design and operation to address the results of the joint and independent test processes. First, Progeny has agreed that it will not collocate its beacon transmitters on the same towers as Part 15 meter reading receivers without first ensuring that such collocation will not cause unacceptable levels of interference to the Part 15 device. Second, Progeny has agreed that it will not construct its network in very rural areas without first working with wireless internet service providers ("WISPs") using 902-928 MHz band equipment in those areas to ensure that unacceptable levels of interference do not result to those unlicensed WISP networks.

Although Progeny does not believe that the test results require these accommodations, these additional measures will nevertheless be effective in ensuring that unacceptable levels of interference do not result even in the isolated instances of collocation and rural operation. The Commission should therefore complete expeditiously this proceeding and authorize Progeny to begin providing its highly-accurate and critically-needed E911 position location service to support emergency first responders and also to support wireless callers to E911 dispatchers seeking emergency assistance. The letters that have been filed by public safety organizations in this docket leave no question about the critical and pressing need for Progeny's service.

Thank you for your attention to this matter. Please contact the undersigned if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Bruce A. Olcott", written over a horizontal line.

Bruce A. Olcott
Counsel to Progeny LMS, LLC